Experimental Options Review FY 07- FY11

AMWG Meeting

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Background and Purpose

- Background: AMP has been evaluating MLFF for 10 years
- Purpose: Identify a suite of flow and non flow actions that will be implemented or tested in FY 07-11
  - Provides foundation for 5 Year Monitoring and Research Plan and FY 07-08 AWP
- General Goals of Options:
  - Improve resource conditions
  - Enhance understanding (learning) of relationship between proposed action and target resource
- Developed cooperatively w/ SPG

Experimental Options

1. Continue evaluating MLFF in spring/summer/ fall, w/ winter ramping experiments + BHBF in winter/spring
2. Continue evaluating MLFF in spring and summer, w/ winter ramping experiments + BHBF in winter/spring + **stable flows in Sept & October**
3. Increased fluctuating flows in summer and winter + BHBF in fall + implementation of a suite of management actions
4. Seasonally adjusted steady flows throughout the year + spring BHBF

Experimental Option #1

Continue evaluating MLFF in spring/summer/ fall, w/ winter ramping experiments + BHBF in winter/spring

- **Scientifically the least confounded approach**
  - Builds on previous learning tied to baseline operations
  - Provides continuity with Phase IV (2003-2006) activities
  - Understand the effect of natural warming and trout removal
- **Includes actions to benefit resources**
  - HBC (translocation, refuge, TCD, exotic fish management)
  - Sediment conservation (winter/spring BHBF)
- **Follows Secretary's mandate to evaluate ROD**
- **Benefits for hydropower resources**
  - Mini-experiment studies of alternative ramping rate/range

Experimental Option #2

Continue evaluating MLFF in spring and summer, w/ winter ramping experiments + BHBF in winter/spring + stable flows in Sept & October

- **Evaluates the effects of steady late summer-fall flows on humpback chub growth/ recruitment**
- **Impacts hydro power generation, but at times of low demand**
- **Includes actions to benefit resources**
  - HBC (translocation, refuge, TCD, exotic fish management)
  - Sediment conservation (winter/spring BHBF)
- **Builds on previous learning tied to baseline operations**
- **Follows Secretary's mandate to evaluate ROD**

Experimental Option #3
WAPA/AGFD/FFF

Increased fluctuating flows in summer and winter + BHBF in fall + implementation of a suite of management actions

- **Emphasizes achieving resource improvements using a suite of flow and non-flow actions**
  - HBC (e.g., exotic fish control, augmentation, translocation, TCD)
  - Sediment conservation (fall BHBF)
- **Increased fluctuating flows in winter and summer targeted at:**
  - Hydropower generation during periods of high demand
  - Aquatic food base production and delivery (RBT an HBC)
  - Rainbow trout fishery below GCD
- **Additional knowledge gained through small, short-term experiments (stable flows, ponding, etc)**
- **Lack of structured experimental design confounds learning (understanding cause/effect relationships)**

Experimental Option #4 (GCT)

Seasonally adjusted steady flows throughout the year + spring BHBF

- Tests a combination of stable/fluctuating flows and variable water temperatures (4 year test blocks) in conjunction with non-native fish control
- Aimed at providing resource benefits and addressing research questions related to Goals 1 (**food base**), 2 (**humpback chub**), 7 (**water temperature, quality and flow dynamics**), 8 (**sediment**), 9 (**recreation**), and 11 (**cultural resources**)
- Provides information to assist in design and operation of a TCD
- Consistent with the GCPA, park values, biological opinion, AMWG priorities, and the best available science
- Significant impact to power generation (stable flow years)
- Factorial design facilitates understanding of cause/effect relationships

Status and Next Steps

- GCMRC Experimental Options Report
  - Describes/compares options and assesses resource impacts (+/-) (based on Knowledge Assessment)
- SPG Review/discussion (ongoing)
- TWG Review (April)
- TWG Approval (June)
- AMWG Approval (August)